

REMARKS:

Claims 25 to 36 and 40 are in the application. Claims 25, 27, 32, and 35 have been amended, claim 37 to 39 have been cancelled, and claim 40 has been added. Claims 25, 32, 35, and 36 are the pending independent claims. Reconsideration and further examination are respectfully requested.

Withdrawal of Previous Arguments

Applicants hereby withdraw all previous arguments made in this case as moot. In view of the Office Action, these arguments have not persuaded the Examiner and are therefore immaterial to the disposition of the case.

Claim Rejections

In the last Office Action, claims 25 to 35 and 37 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,311,193 (Sekido), and claims 36, 38, and 39 were rejected under § 103(a) over Sekido in view of U.S. Patent No. 6,484,186 (Rungta). The Advisory Action in this case substantially reiterated these rejections.

Claims 25 to 31: Amended claim 25 is the independent one of these claims and is reproduced below:

25. A method of operating a file system, said file system including an active map of information indicating in-use and free blocks, said file system

maintaining a set of snapshots, each snapshot including a representation of said file system as it was at an earlier time, said method including  
computing a summary map in response to a logical union of at least two copies of earlier active maps included in at least two of said snapshots.

Sekido is not seen by Applicants to disclose the foregoing features of claim 25, at least with respect to “computing a summary map in response to a logical union of at least two copies of earlier active maps included in at least two of said snapshots.” When read in light of the specification, a “logical union” clearly is a logical operation such as an inclusive OR operation. Claim 27 has been amended to specifically recite this particular form of logical union.

In this regard, Sekido discloses the following: “In the process of judging an invalid block, a block in the invalid state is determined to be a invalid state by checking the bit map on the memory 6 and all of the bit map for the snapshot information.” Sekido, col. 19, lines 12 to 16. However, no mention is made of creating a summary map from all of the bit maps for the snapshot information. For example, Sekido does not recite combining all of the bit maps for its snapshot information to determine a summary map. Sekido certainly does not disclose computing such a summary map in response to a logical union of the bit maps.

Applicants note that they have argued that Sekido failed to disclose such a summary map computed using an inclusive OR operation. In the Advisory Action issued in this case, the Examiner rejected this argument because claim 25 did not explicitly recite the inclusive OR operation. As amended, claim 25 now recites a logical union, and claim 27 now recites a specific logical union in the form of an inclusive OR operation.

In view of the foregoing, claim 25 and its dependent claims are believed to be allowable. Such action is respectfully requested.

Claims 32 to 34: Amended claim 32 is the independent one of these claims and is reproduced below:

32. In a file system including an active map of information indicating in-use and free blocks, said file system maintaining a set of snapshots, each snapshot including a representation of said file system as it was at an earlier time, said file system maintaining a summary map in response to at least one copy of an earlier active map included in at least one of said snapshots, a method of updating said summary map, said method including  
receiving a request to delete a selected snapshot;  
deleting said selected snapshot, wherein said deleting involves, for a block used by said selected snapshot, indicating said block is free in said summary map only in response to a snapshot just prior to said selected snapshot and in response to a snapshot just after said selected snapshot.

Sekido is not seen by Applicants to disclose the foregoing features of claim 32, at least with respect to the feature that “said deleting involves, for a block used by said selected snapshot, indicating said block is free in said summary map only in response to a snapshot just prior to said selected snapshot and in response to a snapshot just after said selected snapshot.”

In this regard, Applicants note that the portions of Sekido cited in the Advisory Action as teaching the feature of “indicating said block is free ...” were not concerned with deleting a snapshot. Sekido does not teach performing such an operation as part of deleting a selected snapshot.

In view of the foregoing, claim 32 and its dependent claims are believed to be allowable. Such action is respectfully requested.

Claim 35 and 40: Amended claim 35 is the independent one of these claims and is reproduced below:

In a file system including an active map of information indicating in-use and free blocks, said file system maintaining a set of snapshots, each snapshot including a representation of said file system as it was at an earlier time, said file system maintaining a summary map computed in response to a logical union of at least two copies of an earlier active map included in at least two of said snapshots, a method of updating said summary map, said method including

selecting a set of blocks maintained by said file system for which to perform a write allocation operation;

updating only a portion of said summary map corresponding to said set of blocks, in response to said selecting; and

performing said write allocation operation in response to said updated summary map.

Sekido is not seen to disclose the foregoing features of claim 35, at least with respect to operations performed on “a summary map computed in response to a logical union of at least two copies of an earlier active map included in at least two of said snapshots.” As discussed above with respect to claim 25, Sekido does not disclose such a summary map. New claim 40 has been added to specifically recite an inclusive OR form of a logical union. Accordingly, allowance of these claims is respectfully requested.

Claims 36: This claim is reproduced below:

36. In a file system including an active map of information indicating in-use and free blocks, and said file system maintaining a set of snapshots, each snapshot including a representation of said file system as it was at an earlier time, said file system maintaining a summary map in response to at least one copy of an earlier active map included in at least one of said snapshots, a method of updating said summary map, said method including

while generating a consistency point, selecting a set of blocks maintained by said file system and updating only a portion of said summary map corresponding to said set of blocks.

In the last Office Action in this case, Rungta was cited as teaching “while generating a consistency point, selecting a set of blocks maintained by said file system and updating only a portion of said summary map corresponding to said set of blocks.” However, Rungta’s snapshot is entirely different from the snapshots and summary maps recited by claim 36. Rungta’s snapshot is of a file, not of a file system. See, e.g., col. 2, line 67, to col. 3, line 5, and col. 3, lines 12 to 17. Thus, Applicants submit that it is improper to combine Rungta’s teachings with Sekido’s to hold claim 36 obvious under 35 U.S.C. § 103(a).

In view of the foregoing, allowance of claim 36 is respectfully requested.

Claim 37 to 39: These claims have been cancelled, rendering the rejections thereof moot.

#### No Admission

Applicant’s decision not to argue each of the dependent claims separately is not an admission that the subject matter of those claims is taught by the applied art.

#### Closing

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner’s earliest convenience.

Applicants' undersigned attorney can be reached at (614) 205-3241. All correspondence should continue to be directed to the address indicated below.

Respectfully submitted,

A handwritten signature in black ink that reads "Dane C. Butzer". The signature is fluid and cursive, with the first name "Dane" being the most prominent.

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